



**BDW91**  
**BDW92**

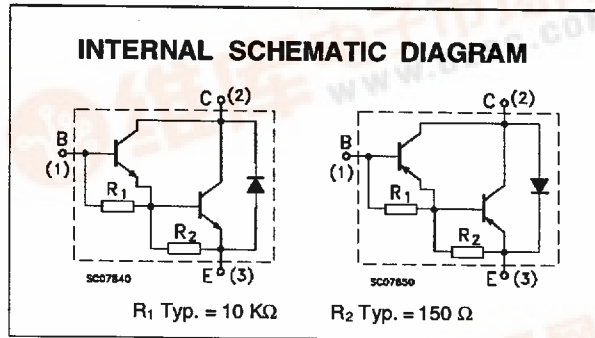
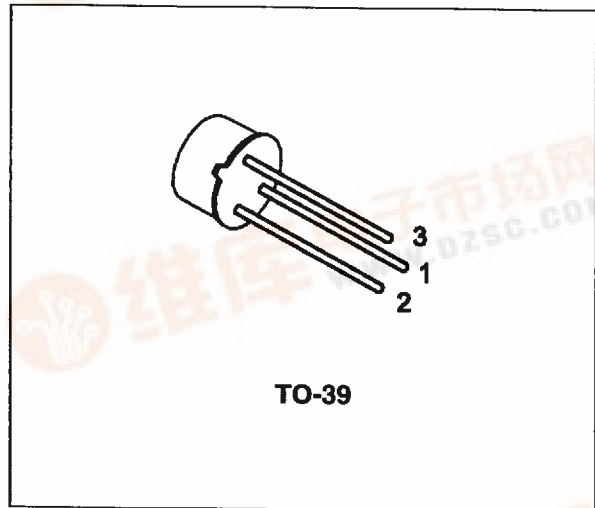
## COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

■ SGS-THOMSON PREFERRED SALESTYPES

**DESCRIPTION**

The BDW91 is a silicon epitaxial-base NPN transistors in monolithic Darlington configuration mounted in Jedec TO-39 metal case, intended for use in linear and switching applications.

The complementary PNP types is BDW92.



**ABSOLUTE MAXIMUM RATINGS**

| Symbol           | Parameter                                      | Value |            | Unit |
|------------------|--|-------|------------|------|
|                  |  | NPN   | BDW91      |      |
|                  |  | PNP   | BDW92      |      |
| V <sub>CB0</sub> | Collector-Base Voltage (I <sub>E</sub> = 0)    |       | 180        | V    |
| V <sub>CE0</sub> | Collector-Emitter Voltage (I <sub>B</sub> = 0) |       | 180        | V    |
| V <sub>EB0</sub> | Emitter-Base Voltage (I <sub>C</sub> = 0)      |       | 6          | V    |
| I <sub>C</sub>   | Collector Current                              |       | 4          | A    |
| I <sub>B</sub>   | Base Current                                   |       | 100        | mA   |
| P <sub>tot</sub> | Total Dissipation at T <sub>case</sub> ≤ 25 °C |       | 10         | W    |
|                  | T <sub>amb</sub> ≤ 25 °C                       |       | 1          | W    |
| T <sub>stg</sub> | Storage Temperature                            |       | -65 to 200 | °C   |
| T <sub>J</sub>   | Max. Operating Junction Temperature            |       | 200        | °C   |

For PNP types voltage and current values are negative.



## BDW91/BDW92

### THERMAL DATA

|                |                                  |     |      |               |
|----------------|----------------------------------|-----|------|---------------|
| $R_{thj-case}$ | Thermal Resistance Junction-case | Max | 17.5 | $^{\circ}C/W$ |
| $R_{thj-amb}$  | Thermal Resistance Junction-amb  | Max | 175  | $^{\circ}C/W$ |

### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

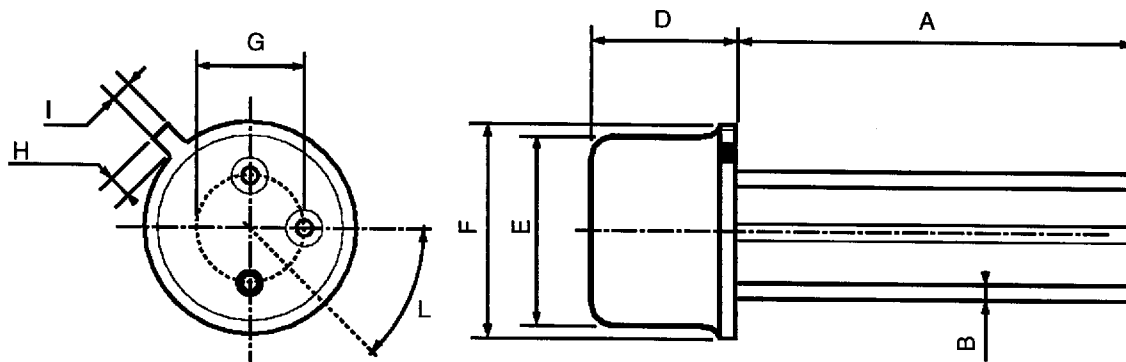
| Symbol           | Parameter                               | Test Conditions              |                                  | Min.        | Typ.        | Max. | Unit    |
|------------------|---|------------------------------|----------------------------------|-------------|-------------|------|---------|
| $I_{CBO}$        | Collector Cut-off Current ( $I_E = 0$ ) | $V_{CB} = 180 V$             |                                  |             |             | 50   | $\mu A$ |
| $I_{CEO}$        | Collector Cut-off Current ( $I_B = 0$ ) | $V_{CE} = 90 V$              |                                  |             |             | 50   | $\mu A$ |
| $I_{EBO}$        | Emitter Cut-off Current ( $I_C = 0$ )   | $V_{EB} = 6 V$               |                                  | 0.4         |             | 2    | mA      |
| $V_{CEO(sus)}^*$ | Collector-Emitter Sustaining Voltage    | $I_C = 50 mA$                |                                  | 180         |             |      | V       |
| $V_{CE(sat)}^*$  | Collector-Emitter Saturation Voltage    | $I_C = 2 A$                  | $I_B = 4 mA$                     |             |             | 2    | V       |
| $V_{BE}^*$       | Base-Emitter Voltage                    | $I_C = 2 A$                  | $V_{CE} = 2 V$                   |             |             | 2.5  | V       |
| $h_{FE}^*$       | DC Current Gain                         | $I_C = 2 A$<br>$I_C = 50 mA$ | $V_{CE} = 5 V$<br>$V_{CE} = 5 V$ | 1000<br>150 | 3000<br>300 |      |         |
| $V_F^*$          | Parallel Diode Forward Voltage          | $I_F = 2 A$                  |                                  |             |             | 2.5  | V       |
| $h_{fe}$         | Small Signal Current Gain               | $I_C = 0.5 A$<br>$f = 1 MHz$ | $V_{CE} = .2 V$                  |             | 20          |      | MHz     |

\* Pulsed: Pulse duration = 300  $\mu s$ , duty cycle 1.5 %  
For PNP types voltage and current values are negative.



**TO39 MECHANICAL DATA**

| DIM. | mm         |      |      | inch  |      |       |
|------|------------|------|------|-------|------|-------|
|      | MIN.       | TYP. | MAX. | MIN.  | TYP. | MAX.  |
| A    | 12.7       |      |      | 0.500 |      |       |
| B    |            |      | 0.49 |       |      | 0.019 |
| D    |            |      | 6.6  |       |      | 0.260 |
| E    |            |      | 8.5  |       |      | 0.334 |
| F    |            |      | 9.4  |       |      | 0.370 |
| G    | 5.08       |      |      | 0.200 |      |       |
| H    |            |      | 1.2  |       |      | 0.047 |
| I    |            |      | 0.9  |       |      | 0.035 |
| L    | 45° (typ.) |      |      |       |      |       |



P008B

